What is claimed is:

1. A variable trajectory sprinkler nozzle assembly comprising:

a nozzle support structure;

a nozzle body pivotally mounted within said nozzle support structure; and

a trajectory adjuster operatively connected to said nozzle body such that movement of said trajectory adjuster causes pivotal movement of said nozzle body;

at least one secondary opening positioned adjacent said nozzle body on said nozzle support structure.

2. A nozzle assembly according to claim 1, wherein said at least one secondary opening is pivotally mounted on said support structure.

3. A nozzle assembly according to claim 1, wherein said at least one secondary opening contains a nozzle having a pre-set trajectory.

4. A variable trajectory sprinkler nozzle assembly comprising:

a nozzle support structure;

a nozzle body pivotally mounted within said nozzle support structure; and

a trajectory adjuster operatively connected to said nozzle body such that movement of said trajectory adjuster causes pivotal movement of said nozzle body; and,

a break-up screw positioned on said nozzle support structure so as to break-up a throw-path of water at a predetermined angle of said nozzle body.

5. A nozzle assembly according to claim 4, wherein said break-up screw is disposed on said nozzle support structure to extend upwardly from a lower surface of said nozzle support structure into a stream path of said nozzle body.

6. A nozzle assembly according to claim 4, wherein said break-up screw is adjustable.

7. A sprinkler bypass system comprising:

a sprinkler inlet;

a stator positioned proximal to said inlet;

said stator including a plurality of pivotable surfaces disposed thereon;

a bypass stop positioned above said stator and biased downwardly against said stator; and,

said pivotable surfaces sized and shaped to pivot upwardly from said stator against said bypass stop when flow through said inlet and against said stator exceeds a predetermined amount.

8. A sprinkler bypass system according to claim 7, wherein pivotable surfaces are connected to said stator with a living hinge.

9. A sprinkler bypass system according to claim 7, wherein said surfaces are comprised of reeds.

10. A spinkler bypass system according to claim 9, wherein said plurality of reeds includes 6 reeds placed circumferentially around said stator.

11. A reversible sprinkler device comprising:

an inlet;

a turbine located proximal to said inlet;

a planetary gear drive operatively connected to said turbine such that rotation of said turbine causes rotation of said planetary gear drive;

a reversible gear train interposed between said turbine and said planetary gear drive, said reversible gear train being movable between two states, each state corresponding to one rotational direction of said planetary gear; and,

said turbine being a unidirectional turbine.

12. A reversible sprinkler device according to claim 11, wherein said reversible gear train includes two groups of pinion gears, one group for rotating said planet gear in a first direction and a second group for rotating said planet gear in an opposite direction.

13. A reversible sprinkler device according to claim 12, wherein said reversible gear train includes a spur gear that drives both groups of pinion gears.

14. A reversible sprinkler device according to claim 13, wherein said reversible gear train includes a cluster gear which is selectively engageable with one of said groups of pinion gears according to said state of said reversible gear train.

15. A reversible sprinkler device according to claim 11, further comprising a reverse rotation actuating mechanism connected to said reversible gear train.

16. A reversible sprinkler device comprising:

an inlet;

a turbine located proximal to said inlet;

a flow director interposed between said inlet and said turbine;

a planetary gear drive operatively connect to said turbine such that rotation of said turbine causes rotation of said planetary gear;

said flow director being movable between two states, each state corresponding to one rotational direction of said planetary gear;

said flow director being biased into either one of said two states by an overcenter spring assembly;

said overcenter spring assembly including a trip arm and a pivot post and a over center spring; said overcenter spring positioned in a loaded stated between said trip arm and said pivot post and said overcenter spring traversing a center hole of said low director; and,

said turbine being a bidirectional turbine.

17. A sprinkler system comprising:

an upper sprinkler assembly;

a lower sprinkler assembly;

a seal located between said upper sprinkler assembly and said lower sprinkler assembly;

a clutch mechanism for allowing manual relative rotation of said upper sprinkler assembly relative to said lower sprinkler assembly;

said clutch mechanism located spatially above said seal.

18. A sprinkler system according to claim 17, wherein said clutch mechanism includes a connective structure connecting said upper sprinkler assembly and said lower assembly, wherein said connective structure is fixedly connected to said lower sprinkler assembly and in movable connection with said upper sprinkler assembly.

19. A sprinkler system according to claim 18, wherein said movable connection of said connective structure includes a resilient sealing connection.

20. A sprinkler system according to claim 19, wherein said resilient sealing connection is an o-ring connection.

21. A sprinkler system according to claim 19, wherein said movable connection further includes a friction member interposed between said resilient sealing connection and said upper sprinkler assembly.

22. A sprinkler system according to claim 21, wherein said friction member comprises a Teflon ring disposed around an internal circumference of said upper sprinkler assembly.

23. An adjustable arc sprinkler mechanism comprising:

an upper rotatable sprinkler housing;

a lower stationary sprinkler housing;

an arc stop assembly interposed between said upper and lower sprinkler housing;

said arc stop assembly including an angularly fixed arc stop member and an angularly movable arc stop member; and,

wherein at least one position of said angularly movable arc stop enables said rotatable sprinkler housing to rotate in one continuous direction.

24. An adjustable arc sprinkler mechanism according to claim 23, wherein said angularly movable arc stop is movable according to disengagement of said arc stop assembly from said upper rotatable sprinkler housing.

25. An adjustable arc sprinkler mechanism according to claim 24, wherein said disengagement of said arc stop is through radial movement of said arc stop assembly.

26. An adjustable arc sprinkler mechanism according to claim 23, wherein said fixed arc stop member includes a radially flexible stop surface, said stop surface being radially flexed out of engagement with a sprinkler stop when said upper rotatable sprinkler housing with said fixed arc stop member is moving in a full circle direction.

27. An arc limit system for a sprinkler comprising:

an upper rotatable sprinkler housing;

a lower stationary sprinkler housing;

an actuator mechanism operable to control a rotational direction of said upper housing;

said actuator mechanism having a trip member;

a plurality of trip stops disposed on said lower housing and positioned on either side of said trip member so as to engage said trip member upon manual rotation of said upper rotatable sprinkler housing.

28. An arc limit system according to claim 27, wherein said trip stops are positioned to prevent excessive force from being transmitted from said trip member to a drive train of said sprinkler.

29. A riser assembly for a sprinkler comprising;

a riser housing having a compartment for receiving a sprinkler riser;

a top surface disposed on said sprinkler riser;

said top surface sized to fit and cover a top opening of said compartment;

a snap ring insertable into said compartment for retaining said sprinkler riser in said riser housing;

said top surface having a plurality of ribs disposed on a bottom surface of said top cap; and,

said ribs being radially contoured along said bottom surface so as to contact and urge movement of said snap ring into said compartment during installation of said snap ring.

30. A riser assembly according to claim 29, wherein said plurality of ribs include a first angled surface and said compartment includes a second angled surface at a top region of said compartment, and wherein said first angled surface and said second angled surface are configured to ensure the formation of a space for containing said snap ring, said space increasing in size in a direction into said compartment.

31. A riser assembly according to claim 30, wherein an angle between said first angled surface and said second angled surface is approximately 7 degrees.

32. A riser assembly according to claim 29, wherein said top surface is sized such that said top surface properly mates with said riser housing only upon complete insertion of said snap ring.

33. A sprinkler comprising:

a riser housing;

a sprinkler riser movable upwardly and downwardly within said riser housing;

a pilot valve connected to said riser housing;

said pilot valve being movable between a state to allow water flow into said sprinkler riser and a state terminating the flow of water into said sprinkler riser;

said pilot valve including a pressure regulating mechanism; and,

said pressure regulating being adjustable according to a desired threshold pressure regulating value;

a visual indicia of said threshold pressure regulating value being disposed on an external surface of said pilot valve.